Notice of Allowability	Application No.	Applicant(s)	
	09/920,567	MORISHIMA, MORITO	
	Examiner	Art Unit	
	Paul Huber	2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment and remarks filed March 29, 2005*.

2. ☒ The allowed claim(s) is/are *5-9, 12-23 and 26-29 (renumbered as claims 1-21, respectively)*.

3. ☒ The drawings filed on *01 August 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

PAUL W. HUBER
PRIMARY EXAMINER

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: the prior art of record considered as a whole fails to teach or suggest either:

1) an optical disk recording apparatus, comprising: a measuring circuit which measures a parameter of a time-base error of a pulse train, the measuring circuit comprising: a phase-locked loop including a phase comparator and a variable frequency oscillator, wherein the phase comparator compares phases of an inputted pulse train and a clock signal based on an oscillation output of the variable frequency oscillator to output a phase error signal, and wherein an oscillation frequency of the variable frequency oscillator is variably controlled in correspondence with the phase error signal so as to allow the clock signal to be synchronized with the pulse train; an absolute value circuit which determines absolute values of phase errors consecutively outputted from the phase comparator; and an average value circuit which determines an average value of the absolute values of the phase errors which are consecutively determined, or which determines a value corresponding to the average value, wherein the value determined by the average value circuit is outputted as a measured value of a parameter of a time-base error of the pulse train; a beam-power adjusting circuit which adjusts recording beam power of a laser beam; and **a control circuit which controls such that test recording is effected with respect to an optical disk while consecutively varying the recording beam power of the laser beam prior to the recording of the optical disk, the test recording is reproduced after the test recording, a value of the parameter of the time-base error of the reproduced pulse train is measured by the measuring circuit, an appropriate value of the recording beam power of the laser beam during actual recording is determined on the basis of the measured value, and the recording beam power of the laser beam is set to the appropriate value so as to effect actual recording**;

2) a measuring circuit according to original claim 10, further including the limitations recited in either of the original dependent claims 12 or 14;

3) an optical disk recording apparatus, comprising: a measuring circuit which measures a parameter of the time-base error of a pulse train, the measuring circuit comprising: a phase-locked loop including a phase comparator and a variable frequency oscillator, wherein the phase comparator compares phases of an inputted pulse train and a clock signal based on an oscillation output of the variable frequency oscillator to output a phase error signal, and wherein an oscillation frequency of the variable frequency oscillator is variably controlled in correspondence with the phase error signal so as to allow the clock signal to be synchronized with the pulse train; and an average value circuit which determines an average value of phase errors consecutively outputted from the phase comparator, or which

determines a value corresponding to the average value, wherein the value determined by the average value circuit is outputted as a measured value of the parameter of the time-base error of the pulse train; a time-base correcting circuit which corrects a time-base of a recording laser-beam drive signal; and **a control circuit which controls such that an amount of time-base correction of the recording laser-beam drive signal is set to a predetermined tentative value prior to recording of an optical disk, test recording is effected with respect to the optical disk while consecutively varying the recording beam power of the laser-beam, the test recording is reproduced after the test recording, a value of the parameter of the time-base error of the reproduced pulse train is measured by the measuring circuit with respect to the test recording recorded with appropriate beam power, the amount of time-base correction of the recording laser-beam drive signal during actual recording is determined on the basis of the measured value, and the amount of time-base correction of the recording laser-beam drive signal is set to the value so as to effect actual recording**;

4) an optical disk recording apparatus, comprising: a measuring circuit which measures a parameter of the time-base error of a pulse train, the measuring circuit comprising: a phase-locked loop including a phase comparator and a variable frequency oscillator, wherein the phase comparator compares phases of an inputted pulse train and a clock signal based on an oscillation output of the variable frequency oscillator to output a phase error signal, and wherein an oscillation frequency of the variable frequency oscillator is variably controlled in correspondence with the phase error signal so as to allow the clock signal to be synchronized with the pulse train; and an average value circuit which determines an average value of phase errors consecutively outputted from the phase comparator, or which determines a value corresponding to the average value, wherein the value determined by the average value circuit is outputted as a measured value of the parameter of the time-base error of the pulse train, and wherein the pulse train has a signal representing digital information on the basis of its pulse length, and the measuring circuit further comprises: a pulse-length discriminating circuit which discriminates a pulse length of one of a pit-corresponding pulse and a blank-corresponding pulse of the pulse train, wherein the average value circuit determines the average value of the phase error at one of a leading edge and a trailing edge of the pit-corresponding pulse, or determines a value corresponding to the average value; a time-base correcting circuit which corrects a time base of a recording laser beam drive signal; and **a control circuit which controls such that an amount of time-base correction of the recording laser-beam drive signal is set to a predetermined tentative value prior to recording of an optical disk, test recording is effected with respect to the optical disk while consecutively varying the recording beam power of the laser beam, the test recording is reproduced after the test recording, values of the parameter of the time-base error of the reproduced pulse train are measured for respective pulse lengths by**

the measuring circuit with respect to the test recording recorded with appropriate beam power, the amounts of time-base correction of the recording laser-beam drive signal during actual recording are determined for the respective pulse lengths on the basis of the measured values of the parameter of the time-base error, and the amounts of time-base correction of relevant portions of the recording laser-beam drive signal are respectively set to those values so as to effect actual recording;

5) an optical disk recording apparatus, comprising: a measuring circuit which measures a parameter of the time-base error of a pulse train, the measuring circuit comprising: a phase-locked loop including a phase comparator and a variable frequency oscillator, wherein the phase comparator compares phases of an inputted pulse train and a clock signal based on an oscillation output of the variable frequency oscillator to output a phase error signal, and wherein an oscillation frequency of the variable frequency oscillator is variably controlled in correspondence with the phase error signal so as to allow the clock signal to be synchronized with the pulse train; and an average value circuit which determines an average value of phase errors consecutively outputted from the phase comparator, or which determines a value corresponding to the average value, wherein the value determined by the average value circuit is outputted as a measured value of the parameter of the time-base error of the pulse train, and wherein the pulse train has a signal representing digital information on the basis of its pulse length, and the measuring circuit further comprises: a pulse-length discriminating circuit which discriminates a pulse length of one of a pit-corresponding pulse and a blank-corresponding pulse of the pulse train, wherein the average value circuit determines the average value of the phase error at one of a leading edge and a trailing edge of the blank-corresponding pulse, or determines a value corresponding to the average value; a time-base correcting circuit which corrects a time base of a recording laser-beam drive signal; and **a control circuit which controls such that an amount of time-base correction of the recording laser-beam drive signal is set to a predetermined tentative value prior to recording of an optical disk, test recording is effected with respect to the optical disk while consecutively varying the recording beam power of the laser beam, the test recording is reproduced after the test recording, values of the parameter of the time-base error of the reproduced pulse train are measured for respective pulse lengths by the measuring circuit with respect to the test recording recorded with appropriate beam power, the amounts of time-base correction of the recording laser-beam drive signal during actual recording are determined for the respective pulse lengths on the basis of the measured values of the parameter of the time-base error, and the amounts of time-base correction of relevant portions of the recording laser-beam drive signal are respectively set to those values so as to effect actual recording;**

6) a measuring circuit which measures a parameter of a time-base error of a pulse train, the measuring circuit comprising: a phase-locked loop including a phase comparator and a variable frequency oscillator, wherein the phase comparator compares phases of an inputted pulse train and a clock signal based on an oscillation output of the variable frequency oscillator to output a phase error signal, and wherein an oscillation frequency of the variable frequency oscillator is variably controlled in correspondence with the phase error signal so as to allow the clock signal to be synchronized with the pulse train; an absolute value circuit which determines absolute values of phase errors consecutively outputted from the phase comparator; **a first average value circuit which determines an average value of the absolute values of the phase errors which are consecutively determined, or which determines a value corresponding to the average value; and a second average value circuit which determines an average value of phase errors consecutively outputted from the phase comparator, or which determines a value corresponding to the average value, wherein the values determined by the first average value circuit and the second average value circuit are respectively outputted as measured values of first and second parameters of the time-base error of the pulse train**;

7) An optical disk recording apparatus, comprising: a measuring circuit which measures a parameter of a time-base error of a pulse train, the measuring circuit comprising: a phase-locked loop including a phase comparator and a variable frequency oscillator, wherein the phase comparator compares phases of an inputted pulse train and a clock signal based on an oscillation output of the variable frequency oscillator to output a phase error signal, and wherein an oscillation frequency of the variable frequency oscillator is variably controlled in correspondence with the phase error signal so as to allow the clock signal to be synchronized with the pulse train; an absolute value circuit which determines absolute values of phase errors consecutively outputted from the phase comparator; **a first average value circuit which determines an average value of the absolute values of the phase errors which are consecutively determined, or which determines a value corresponding to the average value; and a second average value circuit which determines an average value of phase errors consecutively outputted from the phase comparator, or which determines a value corresponding to the average value, wherein the values determined by the first average value circuit and the second average value circuit are respectively outputted as measured values of first and second parameters of the time-base error of the pulse train**; a beam-power adjusting circuit which adjusts recording beam power of a laser beam; a time-base correcting circuit which corrects time base of a recording laser-beam drive signal; and **a control circuit which controls such that an amount of time-base correction of the recording laser-beam drive signal is set to a predetermined tentative value prior to recording of an optical disk, test recording is effected with respect to the optical disk while consecutively**

varying the recording beam power of the laser beam, the test recording is reproduced after the test recording, a value of the first parameter of the time-base error of the reproduced pulse train is measured by the measuring circuit, an appropriate value of the recording beam power of the laser beam during actual recording is determined on the basis of the measured value, a value of the second parameter of the time-base error of the reproduced pulse train is measured by the measuring circuit with respect to the test recording recorded with appropriate beam power, the amount of time-base correction of the recording laser-beam drive signal during actual recording is determined on the basis of the measured value, the recording beam power of the laser beam is set to the appropriate value, and the amount of time-base correction of the recording laser-beam drive signal is set to the value so as to effect actual recording;

8) a measuring circuit for measuring a parameter of a time-base error of a pulse train, the measuring circuit comprising: a phase-locked loop including: variable frequency oscillating means, and phase comparing means for comparing phases of an inputted pulse train and a clock signal based on an oscillation output of the variable frequency oscillating means to output a phase error signal, wherein an oscillation frequency of the variable frequency oscillating means is variably controlled in correspondence with the phase error signal so as to allow the clock signal to be synchronized with the pulse train; absolute value determining means for determining absolute values of phase errors consecutively outputted from the phase comparing means; **first average value determining means for determining an average value of the absolute values of the phase errors which are consecutively determined, or determining a value corresponding to the average value; and second average value determining means for determining an average value of phase errors consecutively outputted from the phase comparing means, or determining a value corresponding to the average value, wherein the values determined by the first average value determining means and the second average value determining means are respectively outputted as measured values of first and second parameters of the time-base error of the pulse train**; or

9) a measurement circuit which measures a value of a time base error of pulses in a pulse train, the measurement circuit comprising: **a switching circuit which selectively supplies one of a pulse train shaped from a return-light reception signal of a reading laser-beam during reproducing and a pulse- train shaped form from a return-light reception signal of a recording laser-beam during recording**: a phase-locked loop including a phase comparator and a variable frequency oscillator, wherein the phase comparator receives the pulse train from the switching circuit and a clock signal and outputs a phase error signal corresponding to a phase difference between the pulse train and the clock signal, and wherein the variable frequency oscillator outputs the clock signal to the phase comparator and variably controls the frequency of the clock signal based on the phase error signal so as to

allow the clock signal to be synchronized with the pulse train; **an absolute value circuit which determines absolute values of the phase error signal consecutively output from the phase comparator; and an average value circuit which determines an average value of the absolute values of the phase error signal which is consecutively determined, or which determines a value corresponding to the average value, wherein the value determined by the average value circuit is output as a measured value of a time-base error of the pulse train.**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication should be directed to Paul Huber at telephone number 571-272-7588.

Paul Huber
Primary Examiner
Art Unit 2653

pwh
June 24, 2005